EE/CprE/SE 492 STATUS REPORT 06 **April 4 - April 17**

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GRID AI: BUILDING A USER-FRIENDLY GRID VISUALIZATION AND WEB-INTERACTIVE INTERFACES FOR THE GRIDAI ELECTRIC POWER GRID MANAGEMENT SOFTWARE

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SKYLER KUTSCH – SVG DIAGRAMS DEVELOPER
FRANCK NDOUTOUME – CODE EDITOR DEVELOPER
HANG KIM THANG – MAP BOX DEVELOPER
JUSTIN SOBERANO – MARKET DASHBOARD DEVELOPER

Weekly Summary

Over the past two weeks, we focused on refining the UI for the dashboard and widget components. Key improvements included switching to a new library for widget movement, enhancing the widget editor to better resemble a code editor, and redesigning the subscription page on the market dashboard. We also began integrating support for widgets to process live time-series data. In parallel, we continued expanding functionality and documentation for the SVG Diagram action item.

Past week accomplishments

- **Jesus Soto:** Integrated the Kafka live data backend into the frontend project and specifically showed actual grid test data in the widgets for users. Provided UI/UX functionality to the widget editor and control over live data mechanics for users to interact with, like selection of specific device name, selection of data measurements, voltage, power, etc.
- **Rangsimun Bargmann:** Finished adding persistence for the new dashboard library so the dashboard layout has persistence in the backend. Additionally, changed the sidebar for the derms page to match the UI in the market dashboard so the platform has a more unified theme. Lastly, refactored my dashboard component into files that represent an individual component to make continued development easier.
- **Skyler Kutsch**: Made progress on the SLD documentation, it is up-to-date with the current code and features, but there's more that will need to be added as the code is updated. Completed importing icons from backend.
- **Franck Ndoutoume**: Updating and debugging the tabs panel.
- **Hang Kim Thang**: Met with one of the 491 team and discussed what I did and what I am currently working on.

- **Justin Soberano**: Now using the new backend apis for the front end components to prevent using any logic in the front end. This will enhance security and prevent any malicious intent from attackers.

Individual contributions

NAME	**Individual Contributions** *(Quick list of contributions. This should be short.)*	**Hours this week**	**HOURS cumulative**
Jesus S.	Finished the integration between the Kafka backend component and the frontend, allowing users to see real-time data in widgets.	10	65
Rangsimun B.	Updated the backend persistence to work with the new dashboard library, made the UI more uniformed, and refactored the code for easier development	10	65
Skyler K.	Began written doc, met with Evan, finalizing icon options, and planning for busbars.	8	48
Franck N.	Developed a Monaco-powered validation system in React to enable real-time DSS checks and prevent invalid builds.	10	64
Hang Kim T.	Updated timeline and remove unwanted information such as data table and chart.	20	54
Justin S.	Made a new subscription page that is now updated and can allow for multiple stakeholders to be subscribed to.	10	64

- **Plans for the upcoming week**

- **Jesus Soto:** Finish up the full development of the widget and live data integration, as well as testing to ensure correctness.
- **Rangsimun Bargmann:** Need to integrate Jesus' widgets that handle live data to work on the dashboard itself.
- **Skyler Kutsch**: Implement busbar logic, update backend to firebase, link to new endpoints in firebase.
- **Franck Ndoutoume**: Improve all interaction between backend and frontend.
- **Hang Kim Thang**: I will be implementing the way mapbox components need to be, instead of how it is implemented: need to change UI/UX.
- **Justin Soberano**: Use new backend endpoints for the bid stuff so we don't use any CRUD operations in the front end.

Summary of weekly advisor meeting

For the next meeting, each team member will continue improving and testing their assigned action items. This includes finalizing the integration of live time-series data into widgets, further refining the dashboard's functionality and appearance to align more closely with ThingsBoard, and completing the documentation for the SVG Diagram tool. Additionally, we will begin transitioning all frontend CRUD operations to the backend to improve scalability, maintainability, and security.